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(FILE 'HOME' ENTERED AT 11:44:51 ON 30 JUN 1999)
FILE 'CA' ENTERED AT 11:44:57 ON 30 JUN 1999

E MOORE L/AU

L1 95 S E3,E13-14,E32,E34-35
L2 6 S L1 AND 1974/PY
L3 1 S L2 AND ANAL/SO
E CALLIS E/AU
L4 11 S E3-6
L5 1 S DOUBLE AND L4
L6 875 S SPIKE(5A) (DOUBLE OR TWO OR 2)
L7 16 S L6 AND(SPECIAT? OR SPECIE)
L8 48 S L6 AND MASS SPEC?
L9 63 S L3,L5,L7-8

=> d 19 bib,ab 1-63

L9 ANSWER 15 OF 63 CA COPYRIGHT 1999 ACS
AN 122:177245 CA
TI Routine lead isotope determinations using a lead-207-lead-204 double spike:
a long-term assessment of analytical precision and accuracy
AU Woodhead, Jon D.; Volker, F.; McCulloch, M. T.
CS Research School Earth Sciences, Australian National Univ., Canberra, 0200,
Australia
SO Analyst (Cambridge, U. K.) (1995), 120(1), 35-9 CODEN: ANALAO; ISSN:
0003-2654
DT Journal
LA English
AB Pb-isotope data obtained on a multicollector mass spectrometer over a four
year period using a 207Pb-204Pb double spike to correct for the effects of
mass discrimination, are reported. Considerable improvements in both
precision and accuracy over conventional correction procedures were noted,
without recourse to rigorous loading or run conditions. An external
precision in 206Pb/204Pb, 207Pb/204Pb and 208Pb/204Pb ratios ± 0.003 , 0.003
and 0.01 (2 \times std. deviation), resp., is routinely obtainable independent
of minor variations in loading and run parameters.

L9 ANSWER 29 OF 63 CA COPYRIGHT 1999 ACS
AN 106:226612 CA
TI High-precision measurement of isotopic fractionation in tin
AU Rosman, K. J. R.; McNaughton, N. J.
CS Sch. Phys. Geosci., Western Aust. Inst. Technol., Bentley, WA 6102,
Australia
SO Int. J. Mass Spectrom. Ion Processes (1987), 75(1), 91-8 CODEN: IJMPDN;
ISSN: 0168-1176
DT Journal
LA English
AB Thermal ionization mass spectrometry was used to measure isotope
fractionation in a variety of Sn samples with high precision. An
ionization enhancer was used to generate ion currents which were measured
with a multicollector ion collection system. The fractionation was detd.
by the double-spiking method using a 117Sn-122Sn double spike. Of 10 Sn
samples analyzed, only one was fractionated, displaying a relative
enrichment in its lighter isotopes of $0.012 \pm 0.006\%$ (2 σ) per mass unit
compared with a lab. ref. sample. This sample and the lab. ref. sample
were high-purity materials supplied by different manufacturers. The reason
for this fractionation has not yet been detd.

L9 ANSWER 37 OF 63 CA COPYRIGHT 1999 ACS
 AN 98:209247 CA
 TI High precision ($\leq 0.01\%$) uranium isotope ratio measurements by thermal ionization mass spectrometry utilizing a double spiking technique
 AU Callis, E. L.
 CS Chem. Eng. Div., Argonne Natl. Lab., Argonne, IL, 60439, USA
 SO Anal. Chem. Nucl. Technol., Proc. Conf. Anal. Chem. Energy Technol., 25th (1982), Meeting Date 1981, 115-23. Editor(s): Lyon, William S. Publisher: Ann Arbor Sci., Ann Arbor, Mich. CODEN: 49LWAY
 DT Conference
 LA English
 AB Thermal ionization mass spectrometry is not an abs. measurement method, and hence relies on the use of empirical correction factors, based on the anal. of synthetic ref. materials to correct for mass fractionation. To obtain precise and accurate results by using this external std. technique, extreme care must be exercised to reproduce the anal. conditions under which samples and stds. are analyzed. In the case of elements with ≥ 4 isotopes, an alternative method is available: the sample can be spiked with a mixt. of 2 sepd. minor isotopes having a known isotope ratio. This ratio then serves as an internal std. to which the ratio of the major isotopes in the unknown sample can be normalized, and hence cancel almost completely the effects of mass fractionation during the anal. A spike of ^{233}U and ^{236}U was prepd. in $\sim 1:1$ ratio and calibrated against NBS U-500 to better than $\pm 0.01\%$. Mixing of the sample and spike is performed directly on the mass spectrometer filament, which simplifies the method and greatly reduces the consumption of spike soln. Details of this internal std. method and results demonstrating the accuracy obtainable are presented.

L9 ANSWER 39 OF 63 CA COPYRIGHT 1999 ACS
 AN 98:182969 CA
 TI Absolute isotope abundances of tin
 AU Devillers, C.; Lecomte, T.; Hagemann, R.
 CS Lab. Spectrom. Masse, Cent. Etudes Nucl. Saclay, Gif-sur-Yvette, 91191, Fr.
 SO Int. J. Mass Spectrom. Ion Phys. (1983), 50(1-2), 205-17 CODEN: IJMIBY; ISSN: 0020-7381
 DT Journal
 LA English
 AB The so-called double-spike technique was combined with isotope ratio measurements by thermal-ionization mass spectrometry to det. the abs. isotope abundances of natural Sn. The exptl. conditions for the mass-spectrometric anal. are given; procedures re described for prepn. of the double-spike soln. and of mixts. of this soln. with natural Sn solns. The new value proposed for the at. wt. of natural Sn is 118.710 ± 0.007 .

L9 ANSWER 56 OF 63 CA COPYRIGHT 1999 ACS
 AN 81:57893 CA
 TI Internal normalization techniques for high accuracy isotope dilution analyses. Application to molybdenum and nickel in standard reference materials
 AU Moore, L. J.; Machlan, L. A.; Shields, W. R.; Garner, E. L.
 CS Inst. Mater. Res., Natl. Bur. Stand., Washington, D. C., USA
 SO Anal. Chem. (1974), 46(8), 1082-9 CODEN: ANCHAM
 DT Journal
 LA English
 AB General exact equations and iteration techniques were developed for internal normalization to eliminate the effect of thermal fractionation in isotope ratio measurements, and therefore isotope diln. analyses, by

thermal ionization mass spectrometry. The techniques are applicable to >20 elements, and were extensively applied to the detn. of Mo in ore concs. (55% Mo) and silicate trace stds: (50 and 500 ppm Mo). The std. deviations of all internally corrected Mo isotope ratio measurements were <0.1%. The Mo sample size was 40 μ g, but normalization techniques should apply to 1- μ g samples with a more sensitive ion detection system. Procedures are described for the chem. sepn. of Mo from matrix interferences and for the mass spectrometric anal. of Mo. Application of the techniques to Ni in 3 pollution std. ref. materials is described.

L9 ANSWER 58 OF 63 CA COPYRIGHT 1999 ACS

AN 78:52134 CA

TI Determinations of neodymium and samarium in standard rocks by the double spike isotope dilution method of mass spectrometry

AU Notsu, Kenji; Mabuchi, Hisao; Ozima, Minoru

CS Fac. Sci., Univ. Tokyo, Tokyo, Japan

SO Bunseki Kagaku (1972), 21(10), 1343-8 CODEN: BNSKAK

DT Journal

LA Japanese

AB In the detn. of Sm, a mixed spike soln. contg. enriched ^{148}Sm and ^{149}Sm was used and ^{147}Sm , ^{148}Sm , and ^{149}Sm mass peaks were measured. For Nd, ^{144}Nd and ^{146}Nd mixed spike soln. was used, and ^{142}Nd , ^{144}Nd , and ^{146}Nd mass peaks were measured. The sample (0.2-0.5 g) contg. the spike was decompd. by HF + HClO_4 or Na_2CO_3 fusion. To eliminate interfering ion peaks, Nd and Sm were sepd. from other elements by a 3-step of ion exchange procedure: all rare earths were sepd. on a Dowex 50W X-8 by eluting with 4N HCl; in the 2nd column (Diaion Sk #1), Sm and Nd were successively isolated from other lanthanides by eluting with 0.25M lactic acid-ammonium lactate (pH 3.60); lactate complexes of Nd and Sm were sepd. from lactate anion by the 3rd column (Dowex 50W X-8) at pH 2 by eluting with 4N HCl. Nd and Sm, converted to perchlorates, were loaded on a Ta filament. The contamination level of Nd or Sm was of the order of 10^{-9} g. Abundances of Nd and Sm obtained for 4 USGS std. rocks were for Nd and Sm resp., G-1, 62.9 ± 1.4 , 8.57 ± 0.04 ; W-1, 13.73 ± 0.14 , 3.38 ± 0.05 ; BCR-1, 29.0 ± 0.4 , 6.84 ± 0.07 ; AGV-1, 32.3 ± 0.3 , 5.92 ± 0.01 ppm. The values obtained agree with those obtained by other isotope diln. analyses. within 10%.

L9 ANSWER 63 OF 63 CA COPYRIGHT 1999 ACS

AN 71:66392 CA

TI Lead isotopic analysis using a double spike

AU Compston, W.; Oversby, V. M.

CS Aust. Nat. Univ., Canberra, Aust.

SO J. Geophys. Res. (1969), 74(17), 4338-48 CODEN: JGREA2

DT Journal

LA English

AB Variable mass discrimination limits the accuracy of Pb isotopic anal. by single-filament surface ionization. It can be cor. to an accuracy of 0.1% by making an addnl. mass anal. of the sample mixed with a double ^{204}Pb , ^{207}Pb tracer. The principles of the method are described and its use is illustrated by replicate anal. of the California Institute of Technology (CIT) common Pb standard. Its accuracy is detd. by the calibration of the $^{204}\text{Pb}/^{207}\text{Pb}$ of the spike, which is here based on the National Bureau of Standards (NBS) equal atom Pb standard and by a comparison of the fractionation cor. CIT ratios with those observed by E. J. Catanzaro.

=> log y

STN INTERNATIONAL LOGOFF AT 11:59:46 ON 30 JUN 1999